

Certified Reference Materials/ Reference Materials for Metals & Alloys

Master Catalogue
2023

Ferrous & Non-ferrous



Contents

From the Founder	2
1.1 Iron, Carbon Steel & Low Alloy Steels	3
1.2 High Carbon & Spring Steel Steels	4
2.1 Stainless Steels / Cr-Mn & Cr Stainless Steel	4
2.2 Tools, High-Mn, Silico-Mn, Duplex Steels & Heat Resistant Steel	5
3.1 Cast Iron/SG Iron	5
4.1 Aluminium Base	6
5.1 Copper Base	7
6.1 Nickel Base	7
7.1 Zinc Base	7
8.1 Lead Base	8
9.1 Titanium Base	8
10.1 Cobalt Base	8
11.1 Setting- Up Samples - Iron Base: Low Alloy, High Alloy and Stainless Steel	9
11.2 Setting- Up Samples- Copper Base	9

Introduction

Metal Power was founded in 1987 by a team of Engineers with the aim of providing specialized services to Engineering industries. Today, Metal Power offers a number of products geared towards Metallurgical and Engineering applications, including Optical Emission Spectrometers, Analytical Standards (RMs, CRMs and SUSs), Argon Purifiers, Spectrometer Sample Surface Preparation Machines and Hydrogen Analyzers among others. The Analytical Standards have been produced as per requirement of international standard, ISO 17034, specific guidelines of ISO and the International Vocabulary of Metrology (VIM).

Certified Reference Material (CRM)

Reference material (RM) characterized by a metrologically valid procedure for one or more specified properties, accompanied by an RM certificate that provides the value of the specified property, its associated uncertainty, and a statement of metrological traceability

NOTE 1 The concept of value includes a nominal property or qualitative attributes such as identity or sequence. Uncertainties for such attributes may be expressed as probabilities or level of confidence.

NOTE 2 Metrologically valid procedures for the production and certification of RMs are given in, among others, ISO Guides 34 and 35.

NOTE 3 ISO Guide 31 gives guidance on the contents of RM certificates.

NOTE 4 ISO/IEC Guide 99:2007 has an analogous definition (5.14).

Reference Material (RM)

Material, sufficiently homogeneous and stable with respect to one or more specified properties, which has been established to be fit for its intended use in a measurement process

NOTE 1 RM is a generic term.

NOTE 2 Properties can be quantitative or qualitative, e.g. identity of substances or species.

NOTE 3 Uses may include the calibration of a measurement system, assessment of a measurement procedure, assigning values to other materials, and quality control.

NOTE 4 ISO/IEC Guide 99:2007 has an analogous definition, but restricts the "measurement" to apply to quantitative values. However, Note 3 of ISO/IEC Guide 99:2007, 5.13 (VIM), specifically includes qualitative properties, called "nominal properties".

Reference Material Certificate

Document containing the essential information for the use of a CRM, confirming that the necessary procedures have been carried out to ensure the validity and metrological traceability of the stated property values

NOTE 1 The required and recommended content of a reference material certificate is described in ISO Guide 31.

Reference Material Producer

Body (organization or company, public or private) that is fully responsible for project planning and management; assignment of, and decision on property values and relevant uncertainties; authorization of property values; and issuance of the reference material certificate or other statements for the reference materials it produces. (ISO Guide 30: 2015)



Shri P. D. Pant

From the Founder

Metal Power was founded in 1987 by a group of professionals with rich backgrounds in the metals industry with the aim of bringing to the market high-end technology products in the fields of Analytical Equipment & Systems and Metallurgical Instruments. From its inception, Metal Power has been dedicated to serving the needs of metal industries. Our effort has been to make high-quality and high-technology products that fuel industrial growth and - more importantly - profitability, by enabling better control of quality and also costs.

Metal Power offers a wide range of Certified Reference Materials (CRM). Metal Power assures the highest quality across various grades of Ferrous and non-Ferrous alloy standards.

Our Standards are traceable, reliable, and accredited as per requirement of international standards ISO-17034. We follow ILAP (Inter-Laboratory Accreditation Programme), have systems in place as, ISO/IEC 17025 for testing and follow ISO Guide 30, 31, 33 & 35 in the manufacturing & processing of CRMs. Each RM/CRM is accompanied by a RM Certificate / Product Information Sheet giving Certified Property Values and Uncertainty of property value.

Backing our range of standards is our deep and vast expertise in Metallurgical and Analytical applications across Ferrous and non-Ferrous industries. With over two decades of experience in selling and manufacturing CRMs, Metal Power assures you of the highest quality products to meet your exact and exacting needs.

Sincerely yours,

P D Pant

1.1 - Iron, Carbon Steel & Low Alloy Steels

Product Code	CRM ID	Equivalent Grades	Category of Certificate	C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	N	V	B	Co	Ti	Sn	W	Nb	Pb	As	Size in mm
	Batch																							
3.00244	CFe01001-A S	Pure Iron	CRM	0.0065	0.0045	0.040	0.0055	0.0036	0.021	0.020	0.0032	0.0017	0.0082	---	---	---	0.0030	---	0.0011	---	---	---	---	Ø39x25
3.00109	G10080 I-15	AISI-1008, ASTM A108	CRM	0.090	0.075	0.37	0.011	0.0062	0.068	0.010	0.0046	0.038	0.010	0.0058	0.0024	0.0004	0.0024	0.0010	---	---	---	---	---	Ø 50x22
3.00069	G-10180 D-12	AISI-1018, DIN CK15	CRM	0.16	0.21	0.51	0.013	0.063	0.17	0.022	0.015	0.057	0.014	---	---	---	0.0035	---	---	---	---	---	---	Ø 40x25
3.00011	G10450 E-10	DIN CK-45, AISI 1045	CRM	0.45	0.24	0.86	0.028	0.014	0.013	0.0051	0.0026	0.020	0.0028	---	0.0010	---	0.0061	---	---	---	---	---	---	Ø 38x25
3.00216	G10550 I-18	AISI 1055	CRM	0.54	0.24	0.87	0.011	0.010	0.16	0.021	---	0.024	0.013	0.010	0.0031	---	0.0046	0.0030	---	---	---	---	---	Ø 40x24
3.00125	G10650 E-16	AISI 1065, EN42 B	CRM	0.69	0.18	0.55	0.010	0.071	0.12	0.085	0.025	0.0031	0.14	0.0091	0.036	<i>0.0043</i>	<i>0.0055</i>	0.0020	<i>0.0048</i>	---	0.0010	<i>0.0020</i>	---	Ø 40x25
3.00128	G-11390 E-16	EN8M	CRM	0.40	0.20	1.17	0.016	0.17	0.11	0.089	0.017	<i>0.0037</i>	0.19	0.0076	<i>0.0020</i>	0.0016	<i>0.0087</i>	0.0014	<i>0.0082</i>	---	<i>0.0013</i>	---	---	Ø 40x25
3.00026	G12130 A-13	EN1A-L	CRM	0.069	<i>0.070</i>	1.15	0.049	0.34	0.043	0.077	0.019	<i>0.0030</i>	0.12	---	<i>0.0042</i>	---	0.012	---	0.035	---	---	0.28	---	Ø 38x20
3.00020	G15410A D-11	DIN 36Mn7, EN15	CRM	0.37	0.30	1.20	0.031	0.0053	0.17	0.010	<i>0.0062</i>	0.030	0.013	---	<i>0.0043</i>	0.0025	---	0.043	---	---	---	<i>0.0030</i>	Ø 45x25	
3.00019	G15410B D-11	DIN 36Mn7, EN15	CRM	0.37	0.31	1.21	0.030	0.0062	0.17	0.0087	0.0070	0.033	0.013	0.0080	0.0062	0.0025	0.0030	0.044	---	---	<i>0.0036</i>	---	---	Ø 45x25
3.00151	G41300 J-16	AISI 4130, 25CrMo4	CRM	0.32	0.26	0.55	0.021	0.0063	1.06	<i>0.026</i>	0.19	0.029	0.013	0.0089	0.0043	---	<i>0.0086</i>	0.0024	---	---	<i>0.0025</i>	<i>0.0010</i>	---	Ø 40x23
3.00160	G41400 J-16	AISI-4140, EN-19	CRM	0.41	0.24	0.74	0.019	0.024	0.97	0.0089	0.22	0.015	0.013	0.0074	0.0067	---	0.0047	0.0045	<i>0.0023</i>	---	<i>0.0039</i>	<i>0.0019</i>	---	Ø 40x22
3.00152	G41500 J-16	AISI 4150, 50CrMo4	CRM	0.54	0.22	0.82	0.012	0.0090	1.00	0.27	0.16	0.0061	0.044	0.010	0.085	---	<i>0.010</i>	0.0034	<i>0.0030</i>	---	<i>0.0022</i>	<i>0.0022</i>	---	Ø 50x24
3.00159	G43400/B C-15	EN24, 40NiCr4Mo3	CRM	0.37	0.27	0.81	0.022	0.019	0.91	1.16	0.27	0.020	0.073	---	---	<i>0.0010</i>	0.013	0.0090	---	---	---	---	---	Ø 40x20
3.00239	G43400 K-20	EN24, 40NiCr4Mo3	CRM	0.42	0.25	0.63	0.011	0.0087	1.20	1.55	0.26	0.018	0.13	0.0090	0.0041	---	---	0.0030	---	---	---	---	---	Ø 46x25
3.00235	G86200 H-20	AISI-8620	CRM	0.21	0.26	0.85	0.012	0.027	0.57	0.43	0.16	0.027	0.029	0.0069	0.0029	0.0010	---	0.0030	---	---	---	---	---	Ø 45 x 26 Ø 48 x 26
3.00162	G86200 B-17	AISI-8620	CRM	0.18	0.24	0.79	0.028	0.017	0.50	0.47	0.16	0.029	0.096	0.0085	0.0089	0.00088	0.0074	0.0023	0.0055	---	<i>0.0026</i>	<i>0.0015</i>	---	Ø 40x25
3.00008	G93100 D-10	DIN EN36C	CRM	0.18	0.24	0.48	0.012	0.0091	0.99	3.62	0.18	0.021	0.11	---	0.0028	---	<i>0.012</i>	<i>0.0037</i>	0.0054	---	---	---	---	Ø 38x25
3.00010	S35300 D-10	EN353, 15NiCr1Mo12	CRM	0.18	0.23	0.59	0.023	0.021	1.13	1.03	0.12	0.016	0.11	0.010	0.0093	---	---	---	---	---	---	---	---	Ø 38x25
3.00153	835M30 A-17	EN30B	CRM	0.34	0.33	0.60	0.025	0.017	1.34	4.00	0.34	0.025	0.13	0.0082	0.0055	0.00056	0.030	0.0044	<i>0.0066</i>	---	<i>0.0024</i>	<i>0.0040</i>	<i>0.0077</i>	Ø 34x20
3.00129	K11597 F-16	P11,13CrMo4-5	CRM	0.12	0.62	0.47	0.016	0.010	1.12	0.11	0.50	0.039	0.056	0.010	0.020	0.0011	0.010	0.0058	0.0038	<i>0.010</i>	---	---	---	Ø 40x25
3.00107	K21590 H-15	P22, ASTM A182	CRM	0.14	0.33	0.44	0.015	0.0042	2.20	0.096	0.91	0.033	0.088	0.012	0.013	0.00065	0.012	0.0029	0.0078	---	0.020	<i>0.0040</i>	<i>0.0056</i>	Ø 40x25
3.00127	K44220 F-16	46Si7, 300M	CRM	0.48	1.82	0.86	0.0092	0.014	0.88	1.36	0.20	<i>0.0055</i>	0.0087	<i>0.0052</i>	0.21	---	0.016	<i>0.0017</i>	<i>0.0030</i>	---	---	---	---	Ø 37x25
3.00095	K02204 A-18	ASTM A678 Grade C	CRM	0.23	0.17	1.46	0.014	0.017	0.12	0.016	0.0035	0.023	0.012	0.0082	<i>0.0029</i>	<i>0.00063</i>	0.0023	0.0023	0.0010	---	0.0015	0.0012	---	Ø 45x22

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

1.2 - High Carbon & Spring Steel Steels

Product Code	CRM ID	Equivalent Grades	Category of Certificate	C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	N	V	B	Co	Ti	Sn	Nb	Size in mm
	Batch																				
3.00017	G52986 G-11	SAE 52100, EN31	CRM	0.97	0.20	0.31	0.012	0.0053	1.44	0.027	0.0061	0.024	0.015	0.0068	0.0034	---	0.0082	0.0018	---	---	Ø 40x25
3.00013	G51500 J-10	AISI 6150, 50Cr4V2	CRM	0.57	0.30	0.83	0.017	0.0094	0.96	0.044	0.013	0.022	0.023	---	0.20	---	0.0087	0.0020	0.0025	---	Ø 40x25
3.00126	F5-Gr1 F-16	Special Steel	CRM	1.26	0.16	0.28	0.019	0.012	0.66	0.072	0.0049	0.0032	0.010	0.0077	0.0039	0.0010	0.0056	0.0023	---	0.0010	Ø 40x25
3.00015	4501 L-10	EN45, DIN 55S17	CRM	0.59	1.67	0.80	0.031	0.025	0.089	0.021	0.012	0.014	0.033	---	0.0041	0.0011	0.0081	0.0037	---	---	Ø 40x25

2.1 - Stainless Steels / Cr-Mn & Cr Stainless Steel

Product Code	CRM ID	Equivalent Grades	Category of Certificate	C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	N	V	B	Co	Ti	Sn	W	Nb	Size in mm
	Batch																					
3.00058	S17400 G-14	17-4PH, ASTM A167	CRM	0.049	0.39	0.70	0.021	0.030	15.11	4.08	0.011	0.0030	3.17	---	0.029	---	0.032	0.0043	---	---	0.29	Ø 40x25
3.00230	S17700 D-19	17-7PH, ASTM A167	CRM	0.051	0.52	0.93	0.027	0.0020	16.38	7.11	---	---	0.063	---	0.086	---	0.17	0.038	---	0.057	---	Ø 40x25
3.00022	S20100 K-11	AISI 201	CRM	0.088	0.34	7.50	0.091	0.017	17.90	3.78	0.13	---	1.38	0.19	0.042	---	0.086	---	---	---	0.0085	Ø 40x25
3.00232	S20910A F-19	AISI 209	CRM	0.047	0.37	4.39	0.022	0.0039	20.92	12.14	1.74	0.025	0.15	0.26	0.17	---	0.078	0.012	---	0.059	0.26	Ø 48x25
3.00112	S30200 B-16	SS-302	CRM	0.083	0.36	1.12	0.034	0.014	17.95	8.07	0.30	0.0030	0.34	0.060	0.069	---	0.15	0.0029	---	0.033	0.014	Ø 40x25
3.00003	S30400 A-10	AISI 304	CRM	0.067	0.43	1.21	0.031	0.014	18.14	8.17	0.21	0.0037	0.29	0.051	0.064	---	0.15	0.0032	---	0.029	---	Ø 50x20
3.00004	S30403 B-10	AISI 304 L	CRM	0.019	0.29	1.90	0.044	0.024	18.11	8.32	0.28	0.0055	0.33	0.082	0.044	---	0.094	0.0032	0.012	---	0.011	Ø 38x25
3.00113	S31000 B-16	SS-310	CRM	0.055	0.46	1.49	0.036	0.0060	24.23	19.27	0.21	0.0056	0.30	0.064	0.067	---	0.13	0.023	---	0.044	0.095	Ø 40x25
3.00110	S31635 L-15	AISI 316-Ti, ASTM A240	CRM	0.020	0.43	1.83	0.037	0.020	16.79	10.56	2.08	0.022	0.40	0.020	0.072	0.0013	0.17	0.29	0.0070	0.045	0.014	Ø 40x25
3.00207	S31703 J-17	SS 317L	CRM	0.022	0.34	1.58	0.040	0.022	18.16	10.99	3.07	---	0.35	0.055	0.054	0.0010	0.29	0.0026	0.0051	0.036	---	Ø 40x25
3.00006	S32100 B-10	AISI 321	CRM	0.035	0.49	1.94	0.037	0.0035	17.51	9.28	0.33	0.012	0.49	---	0.060	---	0.15	0.21	---	---	0.015	Ø 40x25
3.00029	S41000A J-12	AISI 410	CRM	0.15	0.47	0.76	0.025	0.0040	12.09	0.22	---	0.0033	0.033	---	---	---	---	---	---	---	---	Ø 39x20
3.00030	S41000B J-12	AISI 410	CRM	0.13	0.30	0.39	0.020	0.033	11.66	0.080	---	0.0031	---	---	---	---	0.038	0.0030	---	---	0.0033	Ø 39x18
3.00084	S41600 K-11	SS 416	CRM	0.12	0.40	1.19	0.026	0.28	12.15	0.060	---	0.0027	0.015	---	0.024	0.0028	0.024	0.0030	---	---	---	Ø 40x25
3.00087	S43100 K-14	AISI 431	CRM	0.15	0.36	0.90	0.033	0.016	15.53	1.42	0.16	---	0.12	---	0.037	---	0.046	0.0016	0.0040	---	0.0083	Ø 40x25
3.00180	S44004 E-17	SS 440C	CRM	1.11	0.41	0.65	0.024	0.019	16.71	0.53	0.11	0.0056	0.10	0.026	0.079	---	0.032	0.0040	---	0.0075	0.028	Ø 39x23

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

2.2 - Tools, High-Mn, Silico-Mn, Duplex Steels & Heat Resistant Steel

Product Code	CRM ID	Equivalent Grades	Category of Certificate	C	Si	Mn	P	S	Cr	Ni	Mo	Al	Cu	N	V	B	Co	Ti	Sn	W	Nb	Size in mm	
	Batch																						
3.00234	T20812A E-19	H12	CRM	0.38	0.88	0.29	0.029	0.021	4.58	---	1.28	---	0.077	---	0.36	---	---	---	0.0090	0.91	---	---	Ø 50x25
3.00242	T20813 B-21	H13	CRM	0.40	1.12	0.31	0.014	0.0036	5.00	0.12	1.41	0.024	0.077	---	1.01	---	0.046	---	0.0063	---	---	---	Ø 39x25
3.00018	T30402 G-11	D2	CRM	1.50	0.25	0.29	0.023	0.0037	11.50	0.25	0.79	0.013	0.077	0.034	0.67	---	0.022	0.0035	0.0074	---	---	---	Ø 40x25
3.00114	T30403 B-16	D3	CRM	2.10	0.29	0.30	0.022	0.0038	11.82	0.20	0.11	0.0084	0.056	---	0.069	---	0.018	---	---	0.023	---	---	Ø 40x25
3.00241	T11302 B-21	M2	CRM	0.92	0.27	0.29	0.049	0.0094	4.06	0.26	4.91	---	0.12	---	1.78	---	1.11	---	---	6.58	---	---	Ø 41x25
3.00090	T11313 L-14	M3	CRM	0.87	0.30	0.19	0.037	0.043	3.98	0.24	5.42	0.035	0.11	---	2.11	---	0.90	0.0035	0.020	6.33	0.028	---	Ø 40x25
3.00172	S31254 D-17	F44	CRM	0.014	0.18	0.60	0.022	0.0029	20.09	17.47	6.08	0.021	0.65	0.20	0.068	---	0.057	0.0058	---	0.088	0.022	---	Ø 43x20
3.00021	S32750-A H-11	F 51	CRM	0.018	0.43	1.35	0.035	0.020	22.62	5.11	3.15	0.046	0.39	0.22	0.089	---	0.12	0.0045	---	0.17	0.015	---	Ø 50x25
3.00024	S31803 H-11	AISI 2205	CRM	0.031	0.60	1.51	0.022	0.0042	22.24	5.98	3.16	---	0.29	0.17	0.13	0.0034	0.11	0.0048	---	0.050	0.017	---	Ø 37x25
3.00027	S63019 E-12	21-4N	CRM	0.56	0.35	8.19	0.030	0.0071	20.54	4.45	0.30	0.0024	0.11	0.40	0.093	---	0.36	0.0050	---	0.18	0.027	---	Ø 40x20
3.00183	S65007 G-17	Valve Steel	CRM	0.43	3.20	0.71	0.013	0.0090	8.30	0.065	0.042	0.017	0.027	---	0.052	---	0.018	0.0065	--	--	--	--	40x40x25

3.1- Cast Iron/SG Iron

Product Code	CRM ID	Equivalent Grades	Category of Certificate	C	Si	Mn	P	S	Cr	Ti	Ni	Al	Cu	V	B	Co	As	Sn	Mo	W	Nb	Pb	Mg	Size in mm
	Batch																							
3.00031	CI GR1 B-12	ASTM G2500 FG-150	CRM	3.20	2.49	0.61	0.019	0.0072	0.15	0.010	0.012	---	0.019	---	---	---	---	---	0.0037	0.034	---	---	---	Ø36x15
3.00033	CI GR3 I-12	---	CRM	2.41	2.10	0.34	0.087	0.022	1.16	0.0030	0.068	0.011	0.065	0.014	---	0.0079	---	---	0.0044	---	0.0015	---	0.030	Ø36x16
3.00061	CI GR4 I-13	---	CRM	2.18	3.46	0.29	0.021	0.27	0.51	0.019	0.054	0.019	0.065	0.065	0.012	0.028	---	0.028	0.56	0.030	0.016	0.013	0.011	Ø37x15
3.00034	CI Gr-5 C-13	---	CRM	2.43	2.97	0.32	0.051	0.14	0.084	0.10	0.097	---	0.021	0.36	0.020	0.042	---	0.0048	1.16	---	0.015	---	---	Ø36x16
3.00035	CI Gr-6 B-13	---	CRM	1.98	2.46	0.46	0.097	0.13	0.43	0.016	0.15	0.046	0.21	0.13	0.035	0.023	---	0.20	0.28	---	0.021	---	0.0055	Ø36x15
3.00062	CI Gr-7 H-13	ASTM G3500b	CRM	3.07	1.58	0.69	0.018	0.070	0.33	0.018	0.35	0.050	0.015	0.013	0.018	0.044	0.035	---	0.073	0.086	0.013	---	0.017	Ø37x15
3.00063	CI Gr-8 H-13	FG 200	CRM	3.52	1.92	1.30	0.18	0.093	0.25	0.048	0.30	0.051	0.13	0.051	0.0066	0.025	---	0.19	0.23	0.037	0.046	---	---	Ø38x15
3.00072	CI GR9K J-13	---	CRM	2.69	0.93	0.69	0.43	0.070	0.98	0.025	0.31	0.15	2.08	0.027	---	0.034	---	0.024	0.061	0.013	---	0.017	---	Ø36x15
3.00133	CIGR10 J-13	ASTM A48 Class 35	CRM	3.66	1.74	2.03	0.12	0.10	0.40	0.064	0.88	0.29	1.42	0.031	0.0024	0.12	---	0.0047	0.051	0.026	0.097	---	0.0078	Ø37x15
3.00066	CI GR14 I-13	---	CRM	1.99	6.39	0.34	0.023	0.27	0.47	0.029	0.058	---	0.063	0.061	0.016	0.016	---	0.032	0.61	---	0.036	0.024	---	Ø36x15
3.00088	CI GR250 K-14	---	CRM	2.28	1.62	0.25	0.016	0.027	1.71	0.033	1.38	0.13	0.14	0.12	0.018	0.053	---	0.040	0.047	0.019	---	---	0.045	Ø37x14

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

4.1- Aluminium Base

Product Code	CRM ID	Equivalent Grades	Category of Certificate	Si	Cu	Mg	Mn	Fe	Cr	Ni	Zn	Ti	V	Pb	Sn	Sr	Zr	Al	Size in mm
	Batch																		
3.00047	A91050 C-13	1050	CRM	0.16	0.0075	0.0015	0.0031	0.35	0.0024	0.0063	0.0057	0.013	0.0028	0.0070	0.0021	---	0.0022	---	Ø40x32
3.00104	A-91060 B-15	1060	CRM	0.14	0.0034	0.0034	0.0022	0.097	0.0062	0.0040	0.0038	0.0065	0.010	---	0.0055	---	---	---	Ø44x25
3.00044	A96101 B-13	EC 6101	CRM	0.46	0.0047	0.72	0.012	0.14	0.0023	0.0043	0.0036	0.017	0.013	0.0067	0.0021	---	---	---	Ø35x20
3.00246	A96063A G-17	6063	CRM	0.55	0.013	0.51	0.11	0.23	0.0083	0.0060	0.014	0.024	0.011	0.0040	---	---	---	---	Ø43x22
3.00039	A96351 K-10	6351	CRM	0.81	0.025	0.72	0.49	0.19	0.0091	---	0.0089	0.031	0.0057	---	0.0088	---	---	---	Ø40x23
3.00102	A95083 L-14	5083	CRM	0.17	0.063	4.48	0.63	0.20	0.10	0.0060	0.055	0.046	0.010	0.011	---	---	---	---	Ø50x20
3.00166	A03560 A-17	AlSi7Mg, AC4C, LM25	CRM	7.17	0.050	0.43	0.12	0.41	0.016	0.010	0.083	0.26	0.012	0.018	0.0053	---	---	---	Ø50x40
3.00214	A03562 H-18	AC4C-H	CRM	7.14	0.029	0.31	0.046	0.18	0.0061	0.010	0.016	0.11	0.012	0.0046	0.0028	---	0.0010	92.22	Ø50x35
3.00041	A03190 E-11	LM27	CRM	6.98	2.67	0.20	0.43	0.56	0.015	0.0088	0.027	0.043	0.0068	0.013	---	---	---	---	Ø50x37
3.00060	AC-43100 G-13	LM9	CRM	10.91	0.14	0.33	0.34	0.54	0.013	0.0086	0.056	0.049	0.012	0.013	---	0.0036	---	---	Ø48x33
3.00134	AC44100B I-15	LM6	CRM	12.42	0.050	---	0.023	0.46	0.011	0.0091	0.046	0.025	0.0090	0.0060	0.0050	---	0.015	---	Ø50x40
3.00206	AC42000 J-17	AC4B	CRM	7.41	2.46	0.20	0.25	0.54	0.038	0.046	1.50	0.11	---	0.049	0.027	---	0.0077	--	Ø50x40
3.00211	A46100 E-18	AlSi10Cu	CRM	10.57	1.68	0.074	0.19	1.06	0.016	0.072	0.13	0.19	0.010	0.012	0.0083	--	--	--	Ø50x36
3.00202	A03330 A-18	LM24	CRM	8.27	3.22	0.24	0.19	0.84	0.051	0.088	2.10	0.069	0.027	0.15	0.097	--	0.0033	--	Ø50x35

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

5.1- Copper Base

Product Code	CRM ID	Equivalent Grades	Category of Certificate	Cu	Sn	Pb	Zn	Fe	Ni	Mn	S	Al	Sb	Bi	As	Si	P	Cd	Ag	Cr	Size in mm
	Batch																				
3.00217	C11000 H-18	ETP Cu	CRM	99.97	0.0010	0.0026	0.0017	0.0023	0.0025	---	0.0020	0.0035	0.0016	---	0.0010	0.0015	0.0029	---	0.0014	0.0014	Ø39x25
3.00155	C12200 L-16	DHP Cu	CRM	99.89	0.0054	0.0020	0.012	0.0052	0.057	---	0.0045	---	0.0010	---	---	---	0.021	---	0.0088	---	Ø40x25
3.00118	C16200 E-16	Copper-Cadmium	CRM	99.25	---	---	0.0036	0.0035	0.0017	---	---	---	---	---	0.0018	---	0.68	0.0014	---	---	Ø40x20
3.00067	C35000 G-13	Leaded Brass	CRM	61.26	0.20	1.59	36.79	0.25	0.15	0.0025	0.0057	0.012	---	0.0013	0.0060	---	0.0017	---	---	---	Ø39x23
3.00156	C44300 L-16	CuZn	CRM	70.40	0.92	0.033	28.51	0.057	0.065	---	0.0045	---	---	0.0043	0.042	---	0.0016	---	---	---	Ø40x25
3.00049	C46700B A-12	CuZn39Sn1	CRM	62.04	1.23	0.046	36.59	0.018	0.0048	---	0.0024	0.0022	---	---	---	---	---	---	---	---	Ø40x18
3.00243	C63000 C-21	Al-Ni Bronze	CRM	80.54	0.012	0.0058	0.054	3.81	4.84	0.63	---	9.80	---	---	---	0.070	0.0067	---	---	---	Ø57x26
3.00157	C68700 K-16	Al Brass	CRM	77.03	0.041	0.017	21.06	---	0.034	0.0066	---	2.01	---	---	---	0.036	---	---	---	---	Ø40x25
3.00245	C93800A D-17	High Pb Sn Bronze	CRM	77.84	6.76	12.53	0.92	0.019	1.82	0.0015	0.059	0.0015	0.21	0.010	0.020	0.0048	0.057	---	---	---	Ø40 x 20
3.00054	C95800 H-13	ASTM B148, B51400-AB2	CRM	79.75	---	0.0056	0.11	4.64	4.66	1.14	---	9.45	---	0.0040	0.0050	0.083	0.0099	---	---	---	Ø40x25
3.00200	C95210 J-17	CuAl10Fe3 Al-Bronze	CRM	86.58	0.014	0.020	0.18	2.81	0.60	0.11	--	9.53	--	--	--	0.047	0.021	--	0.023	---	Ø40x40x25

6.1- Nickel Base

Product Code	CRM ID	Equivalent Grades	Category of Certificate	C	Fe	Si	Cu	Mn	V	Mo	Cr	Co	Ti	Al	Ni	W	Size in mm
	Batch																
3.00099	N08825 E-16	Inconel 825	CRM	0.011	34.19	0.19	1.91	0.62	0.084	2.61	20.16	0.076	0.86	0.090	38.95	0.025	Ø45x25

7.1- Zinc Base

Product Code	CRM ID	Equivalent Grades	Category of Certificate	Cu	Sn	Fe	Al	Mg	Pb	Zn	Mn	Ni	Cd	Ag	Size in mm
	Batch														
3.00111	Z35531/A B-16	Zamak 5	CRM	0.94	0.0017	0.0028	3.93	0.038	0.0019	95.07	---	---	---	---	Ø50x39
3.00136	Z33520 I-16	Zamak 3	CRM	0.0032	---	0.0054	4.29	0.042	0.0020	95.39	---	0.0018	---	---	Ø50x40
3.00131	Z12002 F-16	Pure Zinc	RM	0.00057	---	0.00071	---	0.00030	0.0016	99.99	0.00050	0.00010	0.00023	0.00047	40x40x25

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

8.1- Lead Base

Product Code	CRM ID		Equivalent Grades	Category of Certificate	Cu	Sn	Fe	Al	Mg	Pb	Bi	Ag	Sb	Zn	As	Ni	Size in mm
	Batch																
3.00142	Pb-Sb3	I-16	---	Provisional	0.027	0.15	0.15	0.00010	0.00010	---	0.0086	0.0020	2.47	---	0.25	0.00020	Ø50x20
3.00130	L50001	F-16	Pure Lead	RM	---	---	---	---	---	99.97	0.010	0.0019	---	<i>0.0003</i>	---	---	Ø45x20 & Ø50x20

9.1- Titanium Base

Product Code	RM ID		Equivalent Grades	Category of Certificate	Al	V	Fe	Si	Zr	Mo	O	N	H	Cu	Cr	Sn	Size in mm
	Batch																
3.00187	R56400	G-17	6Al4V	CRM	6.18	4.14	0.17	0.026	0.0040	<i>0.098</i>	<i>0.16</i>	<i>0.014</i>	<i>0.0023</i>	<i>0.0043</i>	---	---	Ø40x18
3.00205	R56320	I-17	9Ti3Al2.5V	CRM	4.13	2.14	0.032	0.018	<i>0.13</i>	---	---	---	---	---	<i>0.0030</i>	<i>0.0063</i>	Ø40x18 & Ø45x19
3.00188	R56260	H-17	6Al2Sn4Zr6Mo	CRM	6.23	---	0.096	0.056	4.10	6.29	---	---	---	<i>0.0038</i>	---	2.12	Ø31x24

10.1- Cobalt Base

Product Code	RM ID		Equivalent Grades	Category of Certificate	Al	Mn	S	P	Fe	Si	C	Cr	Mo	Ni	W	Size in mm
	Batch															
3.00203	R30605	K-17	Stellite 25	CRM	0.024	1.63	0.0062	0.0083	2.42	0.17	0.083	20.59	0.23	10.54	15.29	Ø38x19

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.

11.1 - Setting- Up Samples - Iron Base: Low Alloy, High Alloy and Stainless Steel

Product Code	SUS ID	SUS BATCH	C	Si	Mn	P	S	Cr	Ti	Ni	Al	Nb	B	Mo	W	Mg	Co	Sn	Cu	V	Pb	Zr	As	N	Sb	Ca	Zn	Se	Size in mm
4.00021	SS-2A	E-12	0.058	2.10	1.58	0.013	0.018	15.95	0.16	8.70	0.57	0.213	0.002	2.13	0.090	---	0.26	<0.010	0.95	0.070	<0.01	0.012	<0.010	0.24	0.24	0.010	---	---	Ø40x25
4.00033	GR5A	A-14	2.62	2.47	1.67	0.091	0.080	12.42	0.158	2.45	0.007	0.003	0.0030	3.30	0.010	---	0.026	0.005	2.34	0.101	---	---	---	0.043	---	---	---	---	~35x35x15
4.00034	GR6A	B-14	1.43	0.80	0.30	0.042	0.016	32.45	0.032	0.577	0.10	0.004	<0.001	0.71	<0.005	---	0.036	0.003	0.363	0.14	---	---	---	0.067	---	---	---	---	36x36x15
4.00036	GR7A	B-14	2.07	1.73	1.78	0.14	0.022	1.59	0.014	15.40	0.018	0.0010	0.0010	<0.001	0.020	---	0.009	0.006	6.62	<0.001	---	---	---	0.008	---	---	---	---	36x36x15
4.00055	GR8A	C-14	3.06	0.889	1.31	0.248	0.213	0.688	0.001	0.871	0.019	---	0.001	1.21	---	---	0.002	---	2.13	---	---	---	---	0.021	---	---	---	---	36x36x15
4.00041	QA-01	G-18	3.00	1.50	0.80	0.25	0.10	0.65	0.073	0.75	0.03	0.10	<0.015	<0.01	<0.05	<0.005	<0.05	0.30	0.020	0.40	0.015	---	0.015	---	---	---	0.020	0.05	Ø36x14

11.2 - Setting- Up Samples- Copper Base

Product Code	SUS ID	SUS BATCH	S	Cu	Pb	Sn	Mn	Fe	Ni	P	Zn	Si	As	Bi	Ag	Sb	Al	Cr	C	Co	B	Cd	Size in mm
4.00070	SUS-Cu1	H-18	0.006	--	0.002	0.009	0.0003	0.022	--	--	0.032	0.002	0.002	--	0.003	--	0.001	0.003	0.005	--	0.002	0.001	Ø39x23
4.00071	SUS-Cu6C	I-13	0.105	79.47	9.94	8.80	0.003	0.039	0.221	0.021	0.879	0.003	0.019	0.009	0.019	0.458	---	---	---	0.019	---	---	Ø40x29
4.00072	SUS-Cu7B	I-17	0.036	67.27	0.018	0.016	0.72	0.80	30.90	---	0.13	0.014	---	---	---	---	<0.001	0.011	0.026	0.025	---	---	Ø44x23

Product Code	RM ID	Category of Certificate	C	Si	Mn	P	S	Cr	Ti	Ni	Al	Cu	V	B	Co	Sn	Mo	W	Nb	Mg	Size in mm
3.00037	ARQC	---	2.91	2.09	0.43	0.08	0.027	0.26	0.11	0.87	0.10	0.15	0.20	0.02	0.053	0.047	0.046	0.015	0.021	0.038	Ø36x15

These (SUS) Standards are to be used for re-standardization / drift corrections of calibration of spectrometer, but they are not certified with respect to accurate composition. Only approximate values are issued with these Standards.
ARQC standard is to be used for Argon Gas quality check

Certified property listed in mass percent (%). The Values listed in bold type certified, and small italic type values are indicative, it should be used only for reference purpose.



METAL POWER PRIVATE LIMITED

C-36/37, First Floor, Raj Industrial Complex, Military Road,
Marol, Andheri (East), Mumbai – 400059.

Board: +91 22 4083 0500 Fax: +91 22 4083 0564

sales@mpplstandards.com | www.mpplstandards.com